

Case 3546***Praeradiolites* Douvillé, 1903 (Bivalvia, RADIOLITIDAE): proposed designation of *Sphaerulites ponsiana* d'Archiac, 1837 as the type species**

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Abstract. The purpose of this application, under Article 81.1 of the Code, is to conserve the usage of the generic name *Praeradiolites* Douvillé, 1902 by designation of *Sphaerulites ponsiana* d'Archiac, 1837 as the type species. The current type species of *Praeradiolites*, *Radiolites fleuriausius* d'Orbigny, 1842, has characteristic features of *Eoradiolites* Douvillé, 1909 instead of *Praeradiolites* of current usage, and cannot be used as the objective standard of reference for the application of the name *Praeradiolites*. Maintaining the present situation would entail a series of disruptive taxonomic changes and threaten stability. We propose the replacement of the type species of *Praeradiolites*, which appears to be a less disruptive solution and may better guarantee wide acceptance and stability.

Keywords. Nomenclature; taxonomy; Bivalvia; RADIOLITIDAE; *Praeradiolites*; *Eoradiolites*; *Sphaerulites*; *fleuriausius*; *ponsiana*; Cretaceous; Tethys.

1. *Praeradiolites* and *Eoradiolites* are two radiolitid genera abundantly reported in rudist palaeontological publications (a list of 71 most recent references on both genera is held by the Secretariat), their diagnostic features are well established and widely accepted, and both include a large number of species (Steuber, 2002). However, the current usage of the generic name *Praeradiolites* is not in accord with the characters of its type species.

2. The generic name *Praeradiolites* was established by Douvillé (1903, p. 469), with *Radiolites fleuriausius* d'Orbigny, 1842 (misspelled by Douvillé as *Radiolites fleuriaui*) originally designated as its type species. The name *Praeradiolites* Douvillé, 1903 is on the Official List of Generic Names in Zoology and *Radiolites fleuriausius* d'Orbigny, 1842 (spelled as *fleuriausi*) was placed on the Official List of Specific Names in Zoology by Opinion 856 (BZN 25(2/3): 86–97, September 1968). *Radiolites fleuriausius* was named after Louis Benjamin Fleuriau de Bellevue, a naturalist of La Rochelle. The spelling *fleuriausius* is an adjectival epithet based on the family name Fleuriau. The spelling *fleuriausi* (as in Opinion 856) is justified by neither etymology nor usage and we propose to correct it to *fleuriausius* (as already used in Kühn's (1932) catalogue). In Opinion 856 the publication date for *Praeradiolites* Douvillé is given as 1902, although the correct date is 1903, as the date '27 Janvier 1903' was printed on p. 385 of vol. 2 of *Bulletin de la Société Géologique de France*. Neave (1940, p. 884) gives the correct date 1903.

3. Douvillé (1903, pp. 468–469, pl. 15, figs. 1–2, 4, 6–8) clearly described and illustrated the characters of *R. fleuriaus* (which he misspelled as *fleuriaui*) and other related species. In the same paper, on p. 469, using *Praeradiolites ponsianus* as an example, he described the modifications occurring in more recent species. Douvillé (1903, p. 470) stated ‘*Bien que le genre Praeradiolites comprenne plus particulièrement les formes anciennes qui n’ont que trois bourrelets ou plis, nous y réunirons encore ces formes plus récentes soit pleuroconques, soit plagiocconques et nous lui donnerons les caractères suivants: Genre Praeradiolites: il comprend toutes les formes de Radiolitines qui présentent une arête cardinale, des lames externes lisses ou légèrement ondulées et essentiellement, dans la région postérieure, deux sinus E et S et un pli ventral; le pli intermédiaire I entre les deux sinus est plus ou moins développé et enfin un pli dorsal PD, peut prendre à l’extrémité de la région plissée une importance comparable à celle du pli ventral V.*’ (English translation: Although the genus *Praeradiolites* embraces more particularly the ancient forms having only three ‘bourrelets’ or folds, we also add those more recent forms, pleuroconch or plagiocconch and we shall give the following characters: The genus *Praeradiolites*: comprising all RADIOLITINAE forms presenting a ligament ridge, smooth or slightly undulated outer lamellae and essentially, in the posterior region, two sinuses E and S and a ventral fold; the intermediate fold I between the two sinuses is more or less developed and finally a dorsal fold PD, may attain an importance comparable to that of the ventral fold V at the end of the folded region).

4. Toucas (1907, pp. 17–46, pls. 1–8) transferred some of the earlier species of *Praeradiolites* to the genus *Agria* Matheron, 1878, keeping the others in *Praeradiolites*. The generic name *Agria* being preoccupied, Kühn (1932) proposed *Agriopleura* to replace it.

5. The generic name *Eoradiolites* was proposed, in a very short note, by Douvillé (1909, p. 77) and *E. davidsoni* was originally designated as its type species. Douvillé (1910, pp. 22–23) provided more details about *Praeradiolites* and *Eoradiolites* and made comparisons. He also (1910, pp. 20–21) stressed the differences in myophore development between species of *Agria* and *Eoradiolites*. The genus *Eoradiolites* was proposed for those primitive species formerly attributed to *Praeradiolites* that possessed two radial down-and-outward folds (radial bands at the outer surface) besides the anterior fold (also a down-and-outward fold), with *E. davidsoni* as type species, as opposed to the other species with two radial up-and-inward folds (radial sinus on the outer surface) limited by three radial down-and-outward folds. Hence, with regard to this feature, the two genera *Eoradiolites* and *Praeradiolites* correspond to the two groups of species, earlier (primitive) and more recent (evolved) respectively, formerly recognised by Douvillé (1902, p. 469) within *Praeradiolites* (groups of *P. fleuriaus* and of *P. ponsianus* in Douvillé (1910, p. 22)). Nevertheless, *fleuriaus*, with the characteristics of *Eoradiolites*, is the type species of *Praeradiolites*.

6. Pons et al. (2011) fully described and figured the characteristics of *P. fleuriaus* on specimens from Italy, and Pons et al. (in press) revised the specimens from the original locality preserved at the École nationale supérieure des Mines de Paris Collection, Université Claude Bernard Lyon I, showing that they all agree with those of *Eoradiolites*. Macé-Bordy (2007) designated a lectotype from the specimens in d’Orbigny’s collection. The lectotype and three paralectotypes show characters of

Eoradiolites, as described in Pons et al. (2010, 2011, in press): ‘Growth lamellae of right valve steeply inwardly inclined, with three main radial down-and-outward folds AF, VF and PF. Radial structures VF and PF produce smooth, flat ribs (radial bands) on the outer surface; the area between VF and PF simple depression that may bear ribs. Outer shell layer structure is non-compact with continuous radial ridges producing ribbed commissural lip. Ligament ridge is triangular, base distal. Left valve with nearly flat centre and inwards inclined margin’.

7. *Radiolites fleuriausius* d’Orbigny, 1842 is the type species of *Praeradiolites* Douvillé, 1903 and should provide the objective standard of reference for the application of the name *Praeradiolites*. Nevertheless, it presents the characteristic features of *Eoradiolites* Douvillé, 1909 instead of those of *Praeradiolites* as in current usage.

8. A strict application of the Code would result in the following major changes in the taxonomy of rudists: (1) the inclusion in *Praeradiolites* of the species having similar characters to *P. fleuriausius* (all those currently ascribed to *Eoradiolites*, 51 species in Steuber’s (2002) catalogue); (2) the exclusion from *Praeradiolites* of the other species (all those currently ascribed to *Praeradiolites*, 77 species in Steuber’s (2002) catalogue); (3) the consideration of *Eoradiolites* as a junior synonym of *Praeradiolites*; and (4) the proposal of a new generic name for all those species currently ascribed to *Praeradiolites*. All the above would seriously undermine stability. The Commission’s action is requested in the view of the forthcoming revised edition of the Bivalvia volume of the ‘*Treatise on Invertebrate Paleontology*’, which will include a volume on rudists. It is desirable that this nomenclatural problem should be resolved before publication of the *Treatise*. The *Treatise* is the major reference book for invertebrate palaeontology systematics (at generic and supra-generic level) used by most palaeontologists worldwide.

9. Considering the above we propose that the Commission use its plenary power to set aside all previous type fixations for the genus *Praeradiolites* Douvillé, 1903 and designate *Sphaerulites ponsiana* d’Archiac, 1835 as the type species.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the genus *Praeradiolites* Douvillé, 1903 and designate *Sphaerulites ponsiana* d’Archiac, 1837 as the type species;
- (2) to emend the entry on the Official List of Generic Names in Zoology for the name *Praeradiolites* Douvillé, 1903 (gender: masculine), to record that its type species is *Sphaerulites ponsiana* d’Archiac, 1837, and not *Radiolites fleuriausius* d’Orbigny, 1842 as ruled in (1) above and that its correct publication date is 1903 and not 1902;
- (3) to place on the Official List of Specific Names in Zoology the name *ponsiana* d’Archiac, 1837, as published in the binomen *Sphaerulites ponsiana* (specific name of the type species of *Praeradiolites* Douvillé, 1903, as ruled in (1) above);
- (4) to emend the entry on the Official List of Specific Names in Zoology for the name *fleuriausius* d’Orbigny, 1842, as published in the binomen *Radiolites fleuriausius* to record that it is not the type species of *Praeradiolites* Douvillé, 1903, as ruled in (1) above, and that its correct original spelling is *fleuriausius* and not *fleuriausi*.

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